Technical Tools for Regional Sediment Management

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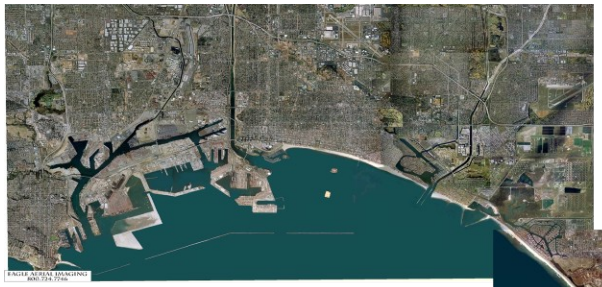
Coastal Sediment Management Workgroup

A "SUPER-REGIONAL" APPROACH



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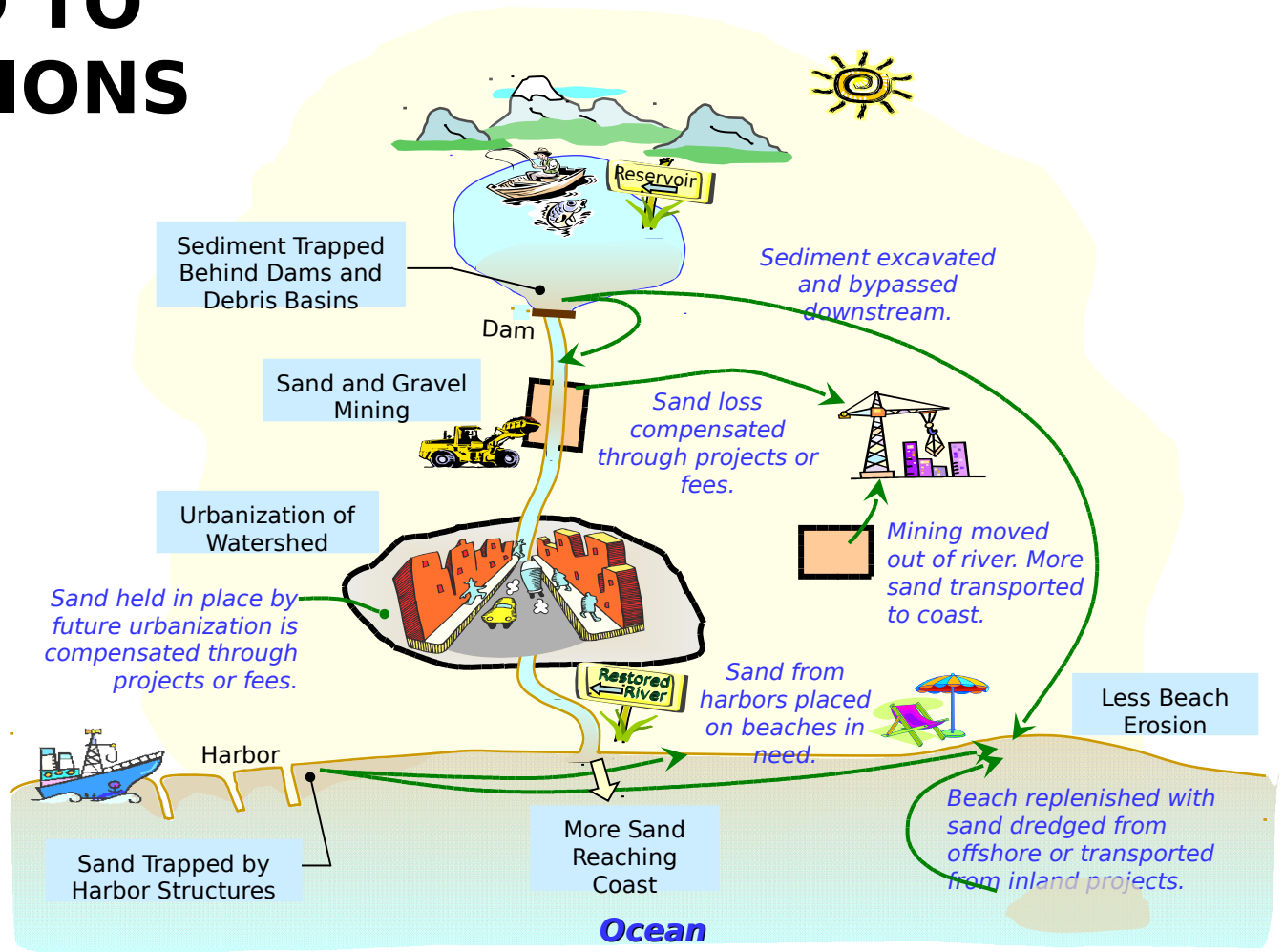
ROAD TO SOLUTIONS


Reservoir
Sediment Trapped Behind Dams and Debris Basins
Sediment excavated and bypassed downstream.
Dam
Sand and Gravel Mining
Sand loss compensated through projects or fees.
Urbanization of Watershed
Mining moved out of river. More sand transported to coast.
Sand held in place by future urbanization is compensated through projects or fees.
Restored River
Sand from harbors placed on beaches in need.
Less Beach Erosion
Harbor
More Sand Reaching Coast
Beach replenished with sand dredged from offshore or transported from inland projects.
Sand Trapped by Harbor Structures
Ocean

Regional Sediment (Sand) Management

TECHNCIAL TOOL CATEGORIES

- Educational and Informational Reports and Data
- Computer Based Tools
- Coastal RSM Plans

ducational and Informational Reports and Dat

- Biological Impacts Analysis and Recommendations
- Cumulative Loss of Sediment Due to Dams
- The Economics of Regional Sediment Management in Ventura and Santa Barbara Counties
- Beaches, Littoral Drift and Littoral Cells -understanding California's Shoreline and Beach Nourishment
- Beach Restoration Regulatory Guide
- Sand Compatibility and Opportunistic Use Program (SCOUP)
- SMP Status Report and Brochure
- Development of Sand Budgets for California's Major Littoral Cells
- Tijuana Estuary Demonstration Program
- Sources, Dispersal & Fate of Fine Sediment Supplied to Coastal California
- Public Outreach & Workshops
- Conceptual Plan to Capture/Reuse Coastal Sediments Lost to Submarine Canyons
- California Beach Erosion Assessment Survey (CBEAS)

Computer Based Tools

- **CSMW Website: www.dbw.ca.gov/csmw/default.aspx**
- **Spatial data viewer (WebMapper)**
- GIS Database Library
- **Coastal References Searchable Database**
- **Coastal Sediment Benefit Analysis Tool (CSBAT)**

Coastal RSM Plans (CRSMPs)

- Completed and Adopted by Regional Entities
  - San Diego County Region (SANDAG)
  - Santa Barbara and Ventura Counties (BEACON)
  - Southern Monterey Bay (AMBAG)
- Starting this year
  - Los Angeles County (LA County Beaches and Harbors/Public Works)
  - Orange County (County of Orange)
  - Eureka Littoral Cell (Humboldt Bay Harbor, Recreation and Conservation District)
  - San Francisco Littoral Cell (BCDC and ABAG)
  - Santa Cruz Littoral Cell (AMBAG)

GOVERNOR SCHWARZENEGGER
Visit his Website

- Mission
- Meetings
- Ocean Action Plan
- New Contact Form
- Public Outreach
- Contact CSMW

thankyouocean.org

WEST COAST GOVERNORS' AGREEMENT on OCEAN HEALTH
CALIFORNIA OREGON WASHINGTON

Coastal Sediment Management Workgroup

CALIFORNIA natural resources AGENCY

US Army Corps of Engineers®

A collaborative effort by federal and state agencies chaired by the U.S. Army Corps of Engineers South Pacific Division and the California Natural Resources Agency

Welcome to CSMWs website! Our taskforce of state, federal and local/regional entities is concerned about adverse impacts on our coastal habitats associated with our urbanizing society, and committed to Regional Sediment Management (RSM) as the means to best protect, restore and enhance our coastal habitats. Some coastal areas are eroding from reduced sediment supply while others are being deluged with excess sediment. Sediment is an integral component of the coastal ecosystem, representing a public good that must be managed to provide for quality of life, natural resource protection, and economic sustainability. Sediment imbalances resulting from alteration of the natural environment therefore threaten the viability of the public good and require management to restore the natural balance. Coordinated beneficial reuse of sediment resources within a regional context helps to restore natural processes and simultaneously address sediment imbalances. RSM can be thought of as "ecosystems management for sediment"!

We are developing a coastal "Sediment Master Plan" (SMP) to guide efforts in addressing political, regulatory, environmental, educational and process-related issues anticipated to arise when implementing RSM. The SMP Status Report 2006 identifies progress to date and planned future activities and priorities; various tools and educational documents developed or in progress are accessible through hyperlinks to your right. The physical setting for coastal sediment imbalance problems and our envisioned road to solutions are discussed in the overview, "Why a SMP is needed."

As part of SMP Implementation, we are working with various regional entities to implement RSM within their jurisdictional area through Coastal RSM Plans. These Plans specify how governance, outreach and technical approaches can support beneficial reuse of sediment resources within and throughout that region without causing environmental degradation or public nuisance.

Information on the various coastal sediment-related programs and projects of CSMW member agencies is available herein, as are meeting records and a library containing relevant documents. Our outreach program has included workshops, development of and mailings to our Public Outreach Contact List. Outreach efforts are also part of each Coastal RSM Plan development. Comments received to date from our public outreach activities can be viewed by workshop/region location.

We encourage you to contact us. Please direct technical issues to the CSMW Project Manager. Policy or procedure related questions can be directed to the CSMW co-chairs. A questionnaire may assist in identifying your concerns. If you would like to be added to our mailing list, please fill out the New Contact form. THANKS!!

Last modified: 04/28/2009

Visit the Flex Your Power Website

Energy efficiency and conservation information. Find incentives/rebates, technical assistance, retailers, product guides, case studies and more.

Save a child with AMBER ALERT

AMBER ALERT empowers law enforcement, the media and the public to combat abduction by sending out immediate information.

CSMWs Ongoing Activities

RSM Related Reports

- Why a SMP is needed
- SMP Biannual Status Report 2006
- Coastal RSM Plan, Southern Monterey Bay (24MB)
- Coastal RSM Plan Ventura & Santa Barbara Counties
- Coastal RSM Plan, San Diego County (7.4MB)
- Sand Compatibility and Opportunistic Use Program (SCOUP) Report

Computer Based Tools

- Spatial Data Website
- Coastal Sediments Benefit Analysis Tool
- Coastal Sediment References Searchable Database

Informational Documents

- Sources, Disperal and Fate of Fine Sediment Supplied to Coastal California
- Beach Restoration Regulatory Guide
- Regional General Permit for Beach Nourishment
- Sand Budgets for California's Major Littoral Cells
- Littoral Cells, Sand Budgets and Beaches
- Economics of RSM Ventura/Santa Barbara Counties
- Cumulative Loss of Sediments to the California Coast from Dams
- SCOUP Pilot Mitigated Negative Declaration
- Coastal Sediment

www.dbw.ca.gov/csmw/default.aspx

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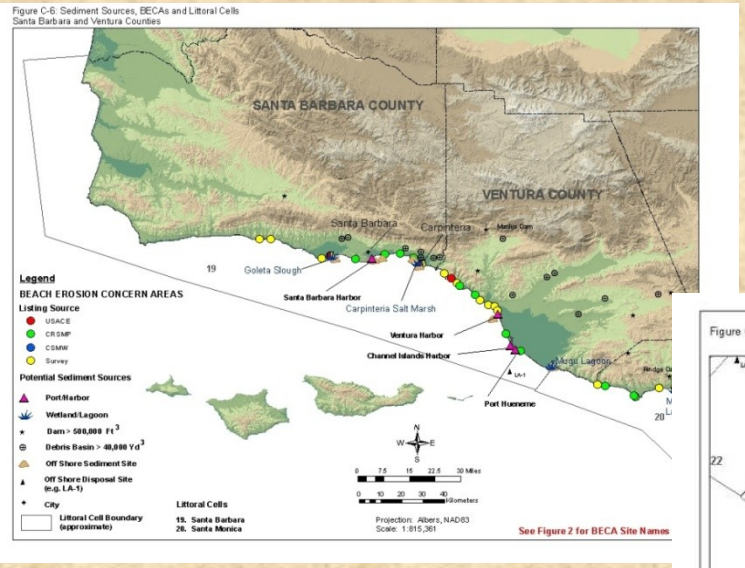
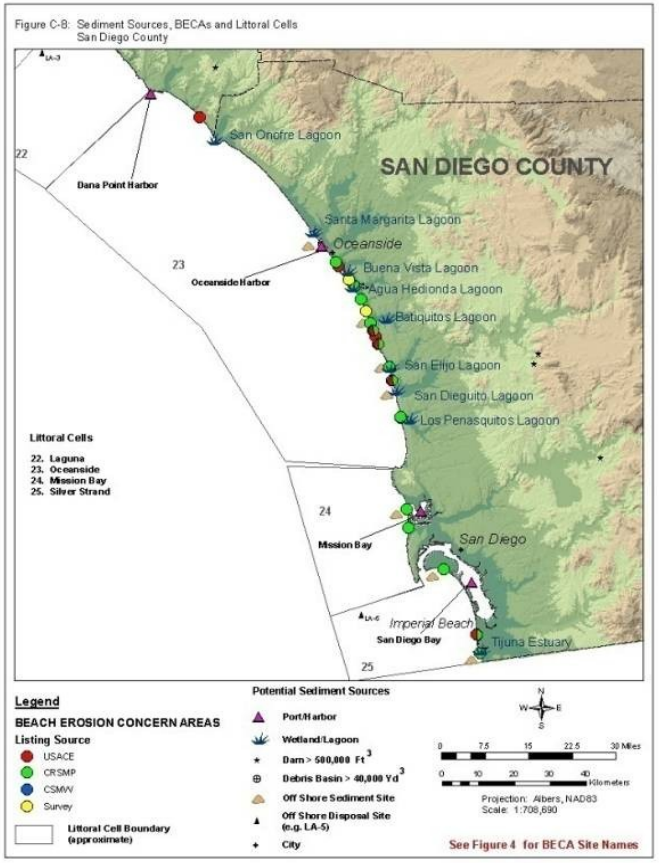
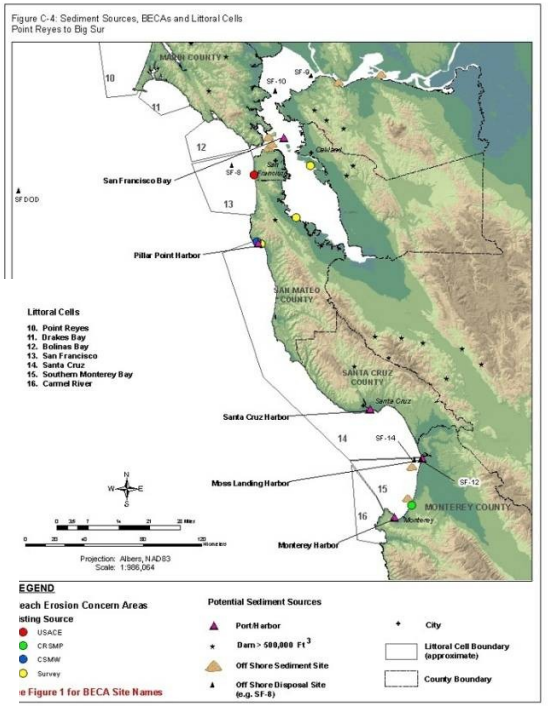
Draft California Beach Erosion Assessment Survey (CBEAS) 2009







California Beach Erosion Assessment Survey

TABLE 1- Potential BECA Locations

County	Location	List Source	Page No. (Appendix A)
Alameda	Robert W. Crown Memorial State Beach	Survey	15
San Mateo	Coyote Point	Survey; County	15
San Francisco	Ocean Beach (San Francisco)	USACE	16
San Mateo	Princeton	CSMW	16
San Mateo	El Granada County Beach	Survey	17
Monterey	Southern Monterey Beaches	CRSMP	17
Santa Barbara	Refugio State Beach	Survey	18
Santa Barbara	El Capitan State Beach	Survey	18
Santa Barbara	Isla Vista	Survey	19
Santa Barbara	Goleta Beach County Park	Survey; USACE	19
Santa Barbara	Arroyo Burro County Beach	CRSMP	20
Santa Barbara	Butterfly Beach	CRSMP	20
Santa Barbara	Summerland Beach	CRSMP	21
Santa Barbara	Santa Claus Beach	CRSMP	21
Santa Barbara	Carpinteria City Beach	Survey; USACE	22
Santa Barbara	La Conchita	Survey	22
Ventura	Oil Piers	USACE	23
Ventura	Hobson County Park	Survey	23
Ventura	North Rincon Parkway	CRSMP	24
Ventura	South Rincon Parkway/Emma Wood County Beaches	CRSMP	24
Ventura	Emma Wood State Beach	Survey	25
Ventura	Surfers Point Park	Survey; CRSMP	25
Ventura	San Buenaventura State Beach	Survey	26
Ventura	Pierpont Beach	Survey	26
Ventura	Oxnard Shores/Mandalay Beach	CRSMP	27
Ventura	Hueneme Beach	CRSMP	27
Los Angeles	Leo Carrillo State Park	Survey	28
Los Angeles	Nicholas Canyon County Beach	CRSMP*	28
Los Angeles	Zuma County Beach	CRSMP*	29
Los Angeles	Point Dume County Beach	CRSMP*	29
Los Angeles	Dan Blocker Beach	Survey; CRSMP*	30
Los Angeles	Malibu Surfriders/ Lagoon County Beach	Survey; CRSMP*	30
Los Angeles	Topanga County Beach	Survey; CRSMP*	31
Los Angeles	Will Rogers State Beach	Survey; CRSMP*	31
Los Angeles	Venice City Beach	Survey; CRSMP*	32
Los Angeles	Dockweiler State Beach	Survey; CRSMP*	32

El Granada County Beach
San Mateo County
Shoreline Mile 20
List Source- Survey

Setting: Narrow sandy beach backed by a low bluff. An unimproved parking area exists at the edge of the bluff downcoast (south) of Half Moon Bay breakwater. A rock revetment exists to the north of the parking area.

Project Lead: San Mateo County

PROBLEM ASSESSMENT

High beach usage/access area. Erosion of the bluff occurs during high tides and storm wave activity. Erosion has undermined the parking area and threatens a wetland behind the former parking area. Undermining of Highway 1 is imminent- some revetment in place to forestall such erosion.

Southern Monterey Beaches
Monterey County
Shoreline Miles: 16.2-19.2
List Source- CRSMP

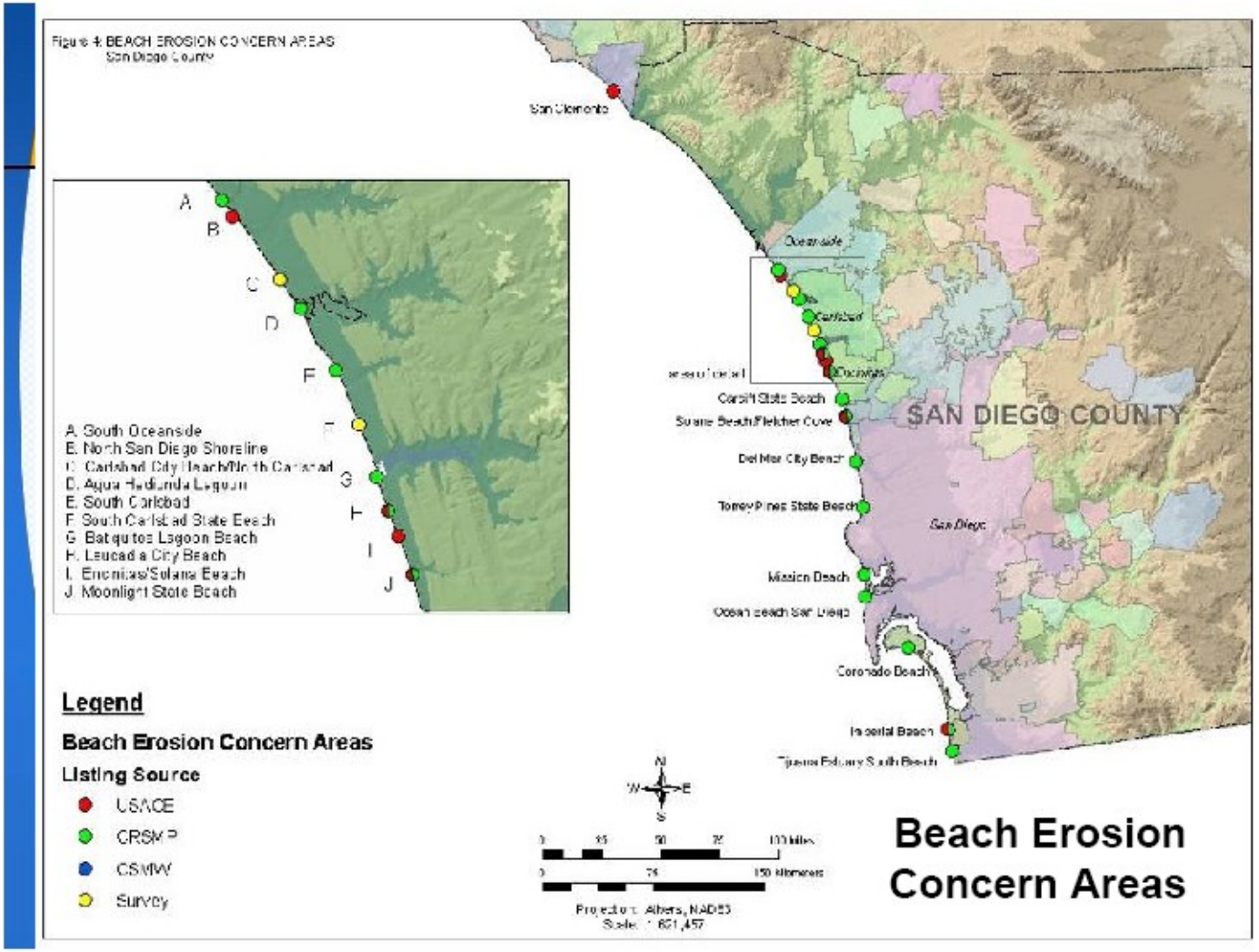
Setting: This stretch of shoreline is a highly desirable beach combing and strolling area located along the picturesque Monterey Bay National Marine Sanctuary and fronting the Cities of Sand City and Monterey.

Project Lead: Association of Monterey Bay Area Governments

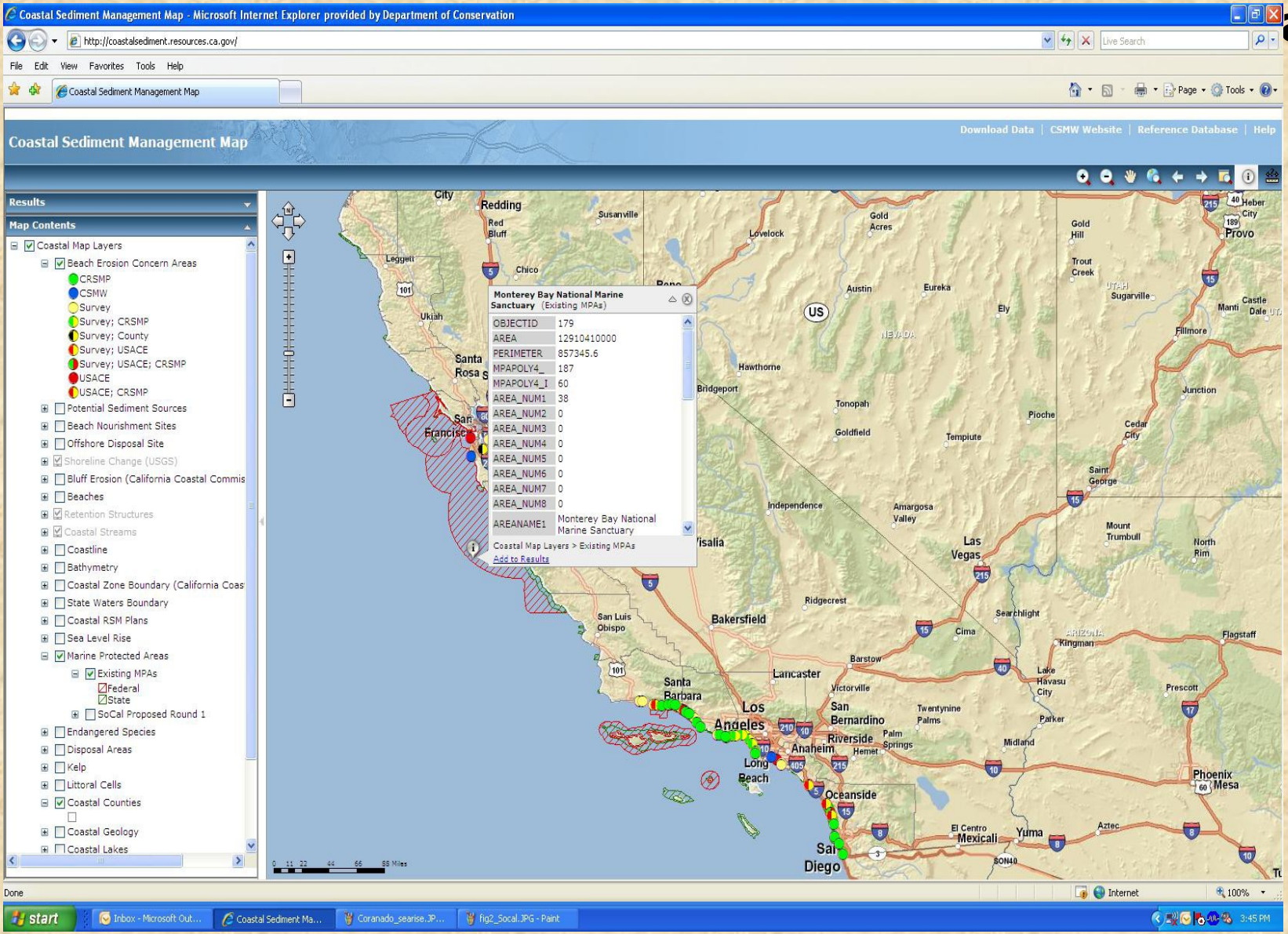
PROBLEM ASSESSMENT

Rapid erosion of the beach and coastal dunes are impacting critical habitats, coastal access, and threatening public infrastructure such as a raw sewage transport trench. Passive erosion fronting areas of hardened shoreline will eventually prohibit lateral beach access through narrowing of the beach. Seawalls continue to be built to protect individual structures from erosion-related damages. A 3-mile stretch of shoreline from Wharf II north to Sand City recommended for restoration in the CRSMP. CRSMP indicates erosion rate of 1.0-3.5 ft/year along this stretch.

BECAs San Diego County



Beach Erosion Concern Areas and Marine Protected as



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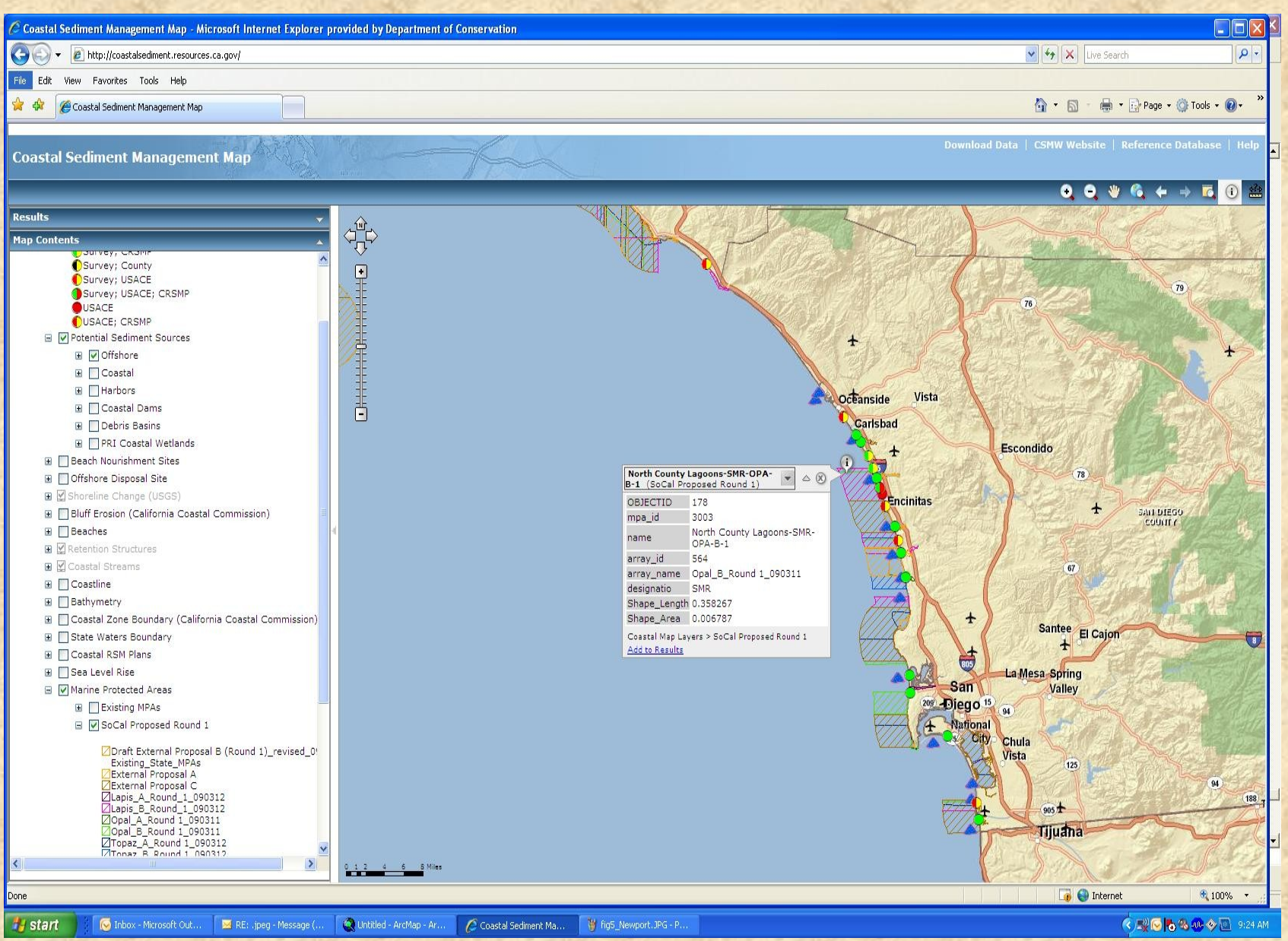
Potential RSM and MPA Locations



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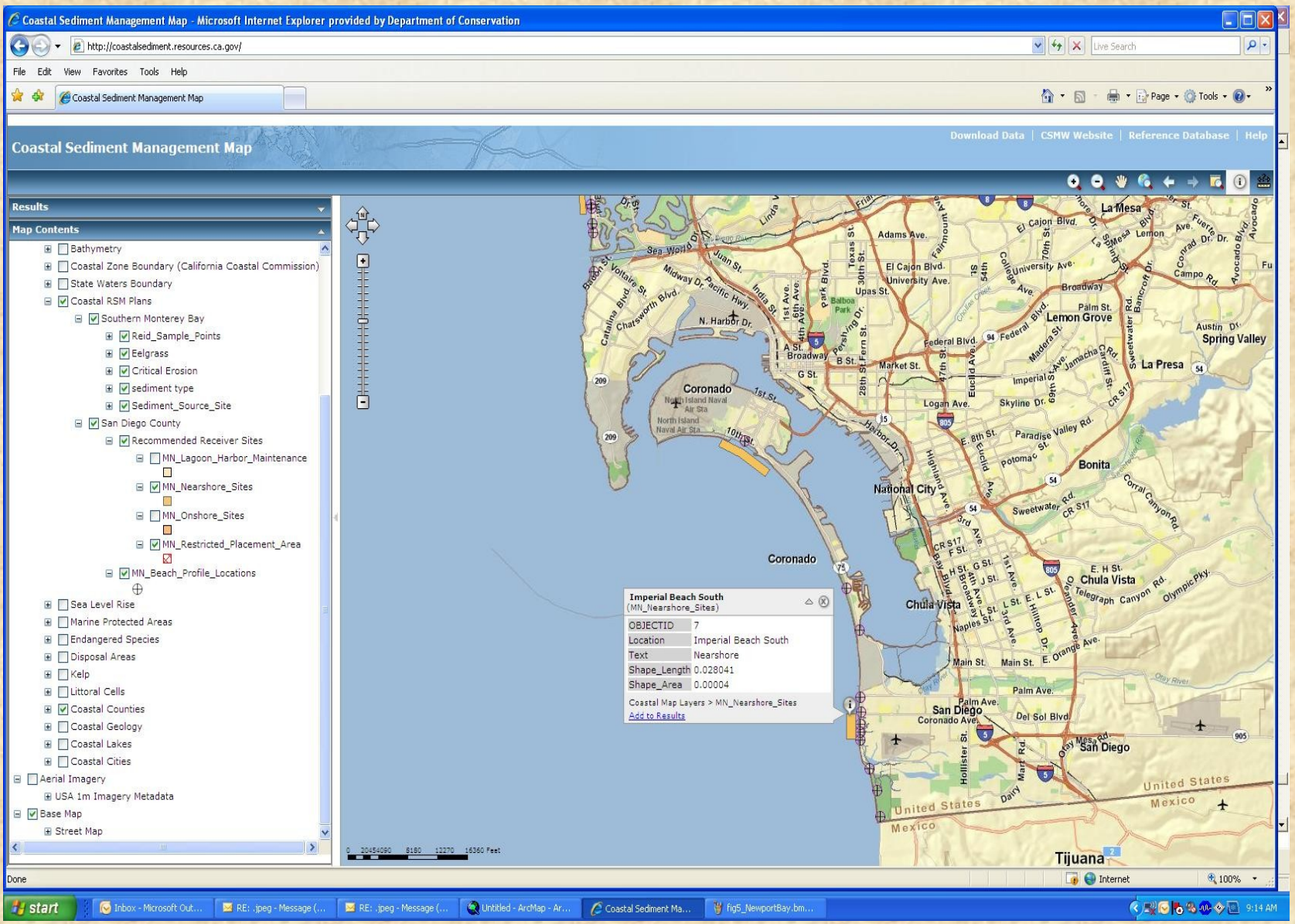
Coastal RSM Data



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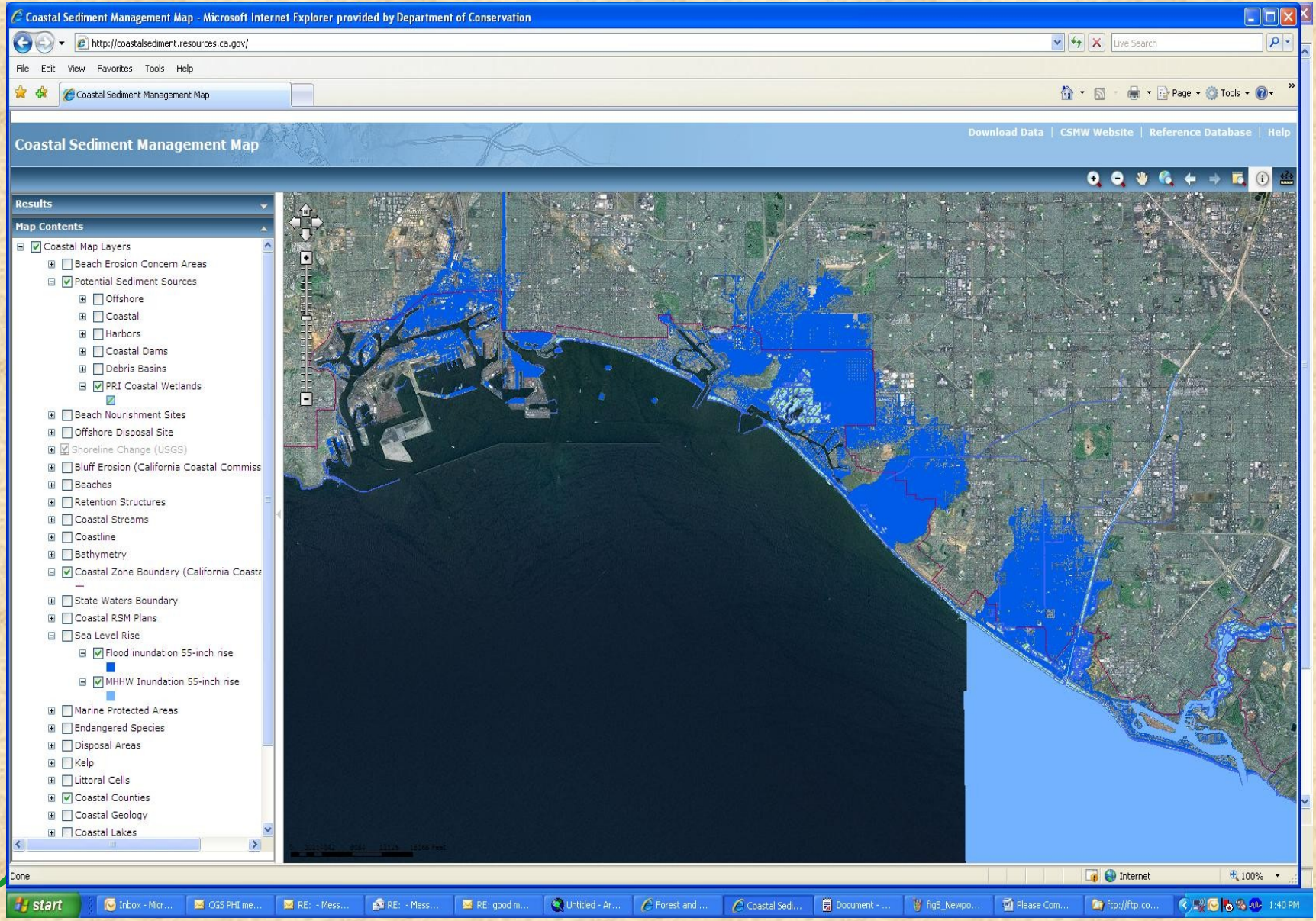
Wetlands, CZB and Sea Level Rise 2100 (PRI)



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CA.GOV C·S·M·W Coastal Sediment Management Workgroup

» Search for Spatial Data

WEST COAST GOVERNORS' AGREEMENT on OCEAN HEALTH

Coastal Sediment Master Plan
Coastal Sediment Reference Database

Author's Last Name | All References | Reference Title | Region

Search

Select a Category

Beach Nourishment Projects
Biology and Habitats
Coastal Erosion
Coastal Processes

Select a Sub Category

Ecological Impacts
Methods
Nearshore Deposition
Physical Characterization

Reset the page

Select a Category

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Coastal Erosion
Coastal Processes
Economic
Human Activities and Impacts
Planning and Governance
Sediment Budgets
Turbidity & Burial

Select a Sub Category

Ecological Impacts
Methods
Nearshore Deposition
Physical Characterization
Results/ Performance
Retention
Sediment Quality
Sediment Sources
Source/Site Sediment Compatibility

Open Report

Title	Last Name	Date Published	Pages	Category
A Biological Study of Macrofaunal and Supratidal Communities in Response to a Proposed Beach Scraping Project at Wild Dunes Development, Isle of Palms, South Carolina. Tech Report for Wild Dunes Assoc. CSE, Columbia, S.C.	Lankford, Baca	1987	20	Beach Nourishment Projects
A review and synthesis of data on surf zone fishes and invertebrates in the South Atlantic Bight and the potential impacts from beach nourishment. Prepared by the University of North Carolina at Wilmington & the North Carolina National Estuarine Research	Hackney, Posey, Ross	1996		Beach Nourishment Projects
Adequacy of Federal and State Laws for Addressing Beach Erosion Problems. http://www3.csc.noaa.gov/beachnourishment/html/human/law/festate.htm. Accessed January 28, 2005.	National Oceanographic and Atmospheric Administration (NOAA)			Beach Nourishment Projects
Amendment to Biological Opinion on San Diego Beaches Sand Replenishment Project, Coastal Zone of San Diego County, California; FWS Log No. 1-6-01-F-1046-1; Corps Public Notice No. 1999-15076-RLK.	USFWS	2001		Beach Nourishment Projects
An analysis of replenished beach design parameters on U.S. East Coast barrier islands. Journal Coastal Research, 6(1).	Leonard, Clayton, O. Pilkey	1990	15-36	Beach Nourishment Projects
An Assessment of the NEPA Cumulative Impact Assessment Methodologies as Related to Beach Nourishment Projects. http://www3.csc.noaa.gov/beachnourishment/html/human/law/scitech.htm. Accessed January 28,	National Oceanographic and Atmospheric			Beach Nourishment

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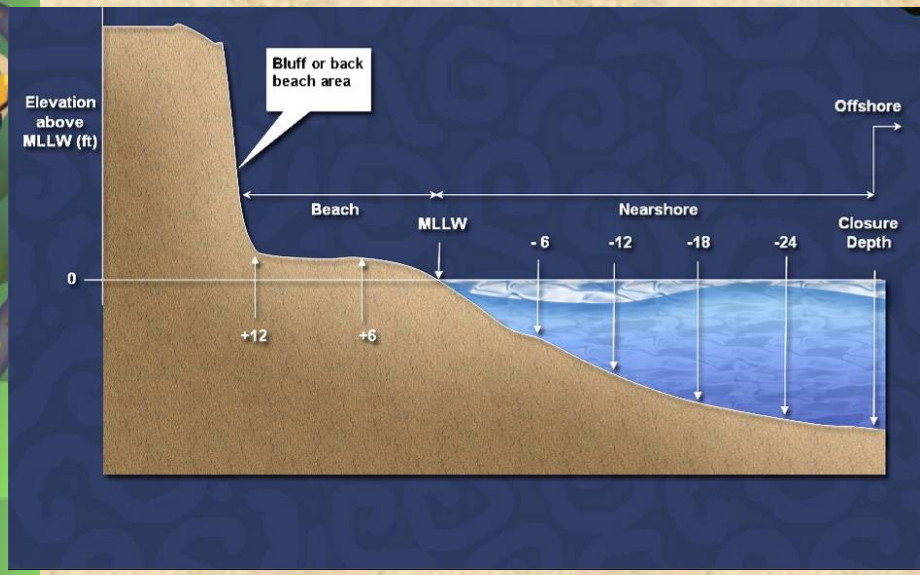
SAND COMPATIBILITY AND OPPORTUNISTIC USE PROGRAM (SCOUP)



- Receiver site ranking and selection
- Acceptable methods of characterizing beach and source sands;
- Environmentally-responsible use of both optimum and less-than- optimum materials;
- Appropriate placement techniques; and
- Permitting needs of local governments and permitting agencies

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SCOUP Receiver Site Evaluation Matrix

- **Pre-permitted opportunistic programs**
- **SCOUP 1 and 2**
- **Southern Monterey Bay**

Criteria Weighted Value →	Minimal Impact to Creek and River Mouths		Previous Receiver Site (Permittability)		Feeds or Beach for Downcoast Beaches		Maximum Natural Sand Retention		Proximity to Natural Sand Supply (creek or river)		Proximity to Potential Stockpile Locations		Support from Local Community		Proximity to Potential Sources		Local Agency Willingness to Permit Site		TOTAL SCORE	RANK
	3		*2*		*2*		*2*		*2*		*1*		*5*		*4*		*5*			
SITE ↓	Value	**Score**	Value	**Score**	Value	**Score**	Value	**Score**	Value	**Score**	Value	**Score**	Value	**Score**	Value	**Score**	Value	**Score**		
Site A	3	**9**	1	**2**	5	**10**	2	**4**	5	**10**	5	**5**	4	**20**	5	**20**	4	**20**	**290**	**2**
Site B	5	**15**	5	**10**	5	**10**	2	**4**	4	**8**	4	**4**	4	**20**	4	**16**	5	**25**	**304**	**1**
Site C	2	**6**	3	**6**	5	**10**	3	**6**	1	**2**	3	**3**	5	**25**	3	**12**	4	**20**	**251**	**3**
Site D	5	**15**	1	**2**	5	**10**	3	**6**	1	**2**	2	**2**	5	**25**	4	**16**	3	**15**	**207**	**5**
Site E	5	**15**	5	**10**	2	**4**	2	**4**	1	**2**	2	**2**	3	**15**	5	**20**	5	**25**	**239**	**4**

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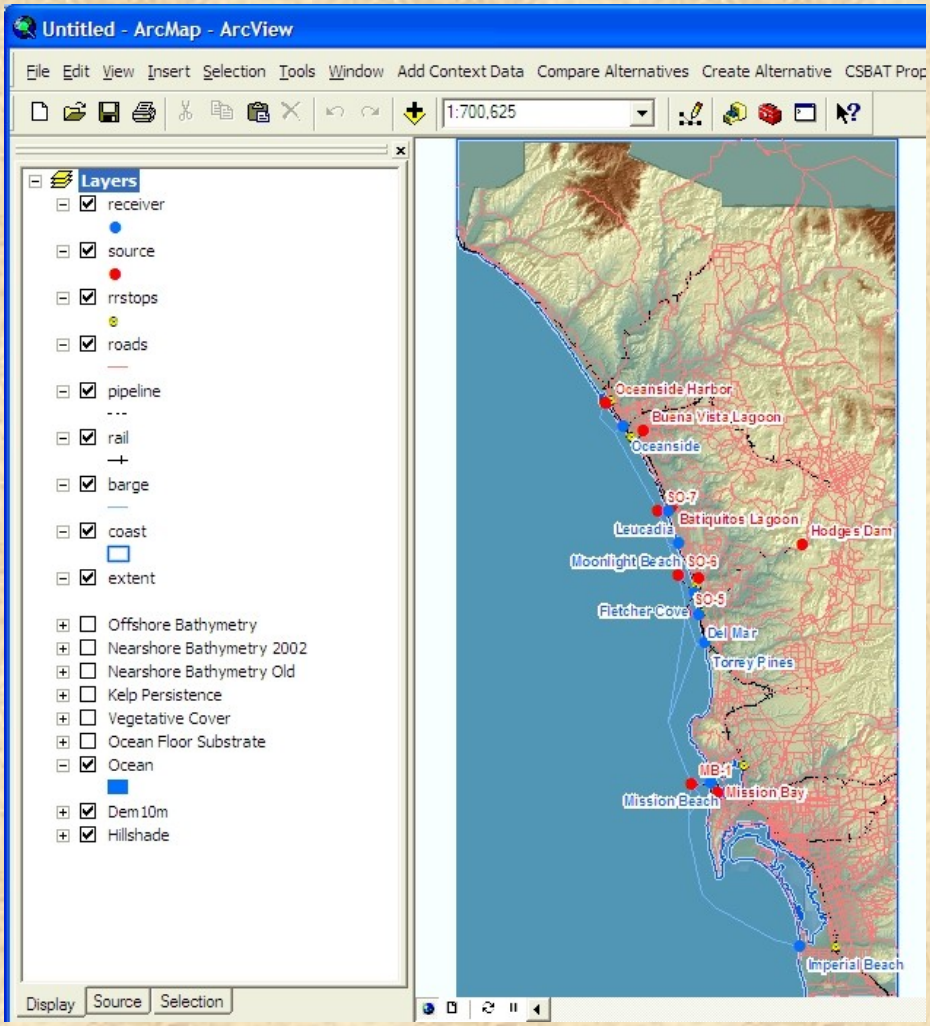
Coastal Sediment Benefit Analysis Tool (CSBAT)

- A GIS-based management support tool for decision makers to evaluate future dredging and disposal options along the coast.
- Sources – harbors, dams, inland, offshore
- Tool looks at recreation benefits and costs of transporting sediment to various locations.
- Santa Barbara, Ventura, Monterey and San Diego Counties



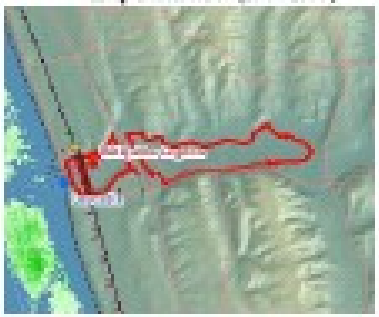
Sediment Source: Environmental Considerations

Reefs: No Kelp Beds: No Eelgrass/ Surfgrass: No Grunion: No

Fish: No Gulls/ Terns: No Shorebirds: No Diving Birds: No

Shellfish: No Wading Birds: Yes Marine Mammals: No

Kelp Persistence (1967-1999)



Oceanfloor Substrate

Receiver Beach: Environmental Considerations

Reefs: Yes Kelp Beds: Yes Eelgrass/ Surfgrass: Yes Grunion: No

Fish: No Gulls/ Terns: Yes Shorebirds: No Diving Birds: Yes

Shellfish: No Wading Birds: No Marine Mammals: No

Kelp Persistence (1967-1999)

Oceanfloor Substrate

Receiver Beach Characteristics

Beach Width (ft):

Beach Length (ft):

Berm Height(ft):

Historical Erosion Rate (ft/yr):

Longshore Diffusivity (sq ft/sec):

Scenario ID: 100000 Cy from Batiquitos Lagoon to Leucadia via pipeline

Nearshore Placement of Sediment

Source Location		Receiver Location	
Source Site:	Batiquitos Lagoon	Receiver Beach:	Leucadia
County:	San Diego	County:	San Diego
Littoral Cell:	South Oceanside	Littoral Cell:	South Oceanside

Receiver Beach Information

Existing Beach Width*(ft):	83
Beach Fill Length(ft):	3,000
Berm Fill Volume(cy):	100,000
Increased Beach Width, Yr-0(ft):	21.20

*Based on site observation in

Sediment Characteristics

Receiver D50 (mm):	0.102
Source D50 (mm):	0.173
Receiver % Fines:	0
Source % Fines:	0

Receiver Beach or Sediment Source: Environmental Considerations

Reefs: Yes Kelp Beds: Yes Eelgrass/ Surfgrass: Yes Grunion: No

Fish: No Gulls/ Terns: Yes Shorebirds: No Diving Birds: Yes

Shellfish: No Wading Birds: Yes Marine Mammals: No Transit Time: 0

Alternative	Total Costs	Fill Volume	Increased Recreation	Benefit/Cost Ratio	Cost/Yard	# of Env Factors
Bat Leu truck	$1,596,200	100000	$1,037,547	0.7	$16.00	6
Bat Moon Pipe	$1,303,258	100000	$707,126	0.5	$13.00	4
Bat Moon truck	$1,709,800	100000	$707,126	0.4	$17.00	4
Bat to Leu pipe	$1,010,000	100000	$1,037,547	1	$10.00	6

Coastal Sediment Management Workgroup

US Army Corps of Engineers ®
Los Angeles District

Questions?

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